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| 09/734,891      | 12/13/2000  | Fumihiko Haga        | 040302/0249         | 5674             |

22428 7590 08/18/2003

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| EXAMINER |
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NGUYEN, CAM N

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| ART UNIT | PAPER NUMBER |
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1754

DATE MAILED: 08/18/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/734,891

Applicant(s)

Haga et al.

Examiner

Cam Nguyen

Art Unit

1754



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 6/5/03 (a response)
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above, claim(s) 11-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

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### DETAILED ACTION

1. Applicants' remarks, filed on June 5, 2003, have been carefully considered.

Claims 1-18 remain pending in this application.

2. Claims 11-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made without traverse in Paper No. 8.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4, 6, & 9 are rejected under 35 U.S.C. 103(c) as being obvious over Suzuki et al., "hereinafter Suzuki", (US Pat. 5,849,254).

Suzuki discloses a catalyst comprising: a porous support; a lower layer loaded on said porous support, said lower layer comprising a noble metal catalyst ingredient and at least one NOx absorber selected from the group consisting of alkaline metals, alkaline-earth metals and

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rare earth metals; and an upper layer formed on said lower layer, said upper layer comprising oxides of at least one metal selected from the group consisting of iron (Fe), cobalt (Co), nickel (Ni), copper (Cu), and manganese (Mn) (see col. 11, claim 1). Suzuki further discloses that zinc (Zn) is also a suitable catalytic component (see col. 2, ln 55-56). Suitable porous acidic supports include  $\text{SiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{TiO}_2$ ,  $\text{Al}_2\text{O}_3$ , and so on (see col. 2, ln 61-63). Suzuki specifically discloses that the first catalyst comprises a first honeycomb support formed of cordierite, a first catalyst carrier layer formed of  $\text{SiO}_2$ , and coated on the surface of the first honeycomb support, and platinum (Pt) loaded on the first carrier layer (see col. 5, ln 5-9). The third catalyst comprises a third honeycomb support formed of cordierite, a third catalyst carrier layer formed of  $\text{Al}_2\text{O}_3$  and coated on the surface of the third honeycomb support, and platinum (Pt) and rhodium (Rh) loaded on the third catalyst layer (see col. 5, ln 14-18).

Regarding claims 1 & 2, it is considered the upper layer of the reference is the catalytic component I, and the lower layer of the reference is the catalytic component II. While Suzuki does not specifically recite using Cu and Zn together or a layer containing both Cu and Zn, it is prima facie obvious to one of ordinary skill in the art at the time the invention was made to have utilized both Cu and Zn together to achieve an effective catalyst because Suzuki discloses in the reference that Zn is also a suitable catalytic component, which can be employed.

Regarding claim 4, the claim is met by the teaching of the reference because the reference teaches alkaline-earth metals, which include magnesia as being claimed.

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Regarding claim 6, it is considered the claim is met because the reference teaches that the first catalyst layer contains Pt (which is the claimed catalytic component IIB) and the third catalyst layer also contains noble metals, platinum (Pt) and rhodium (Rh), (which is the claimed catalytic component IIA).

Regarding claim 9, the claim is met by the reference since Suzuki teaches the first catalyst contains SiO<sub>2</sub> (see Suzuki at col. 5, ln 5-9).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 5, 7-8, & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al., "hereinafter Suzuki", (US Pat. 5,849,254), as applied to claims 1-2, 4, 6, & 9 above, and further in view of Takahata et al., "hereinafter Takahata", (US Pat. 5,376,610).

Suzuki discloses a catalyst as described above, except for the following differences.

Regarding claims 3 & 8, Suzuki does not disclose Cu, Zn, metal oxide, and one of Pt and Pd are dispersed and mixed together as being claimed. It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have added the Pt and/or

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Pd to the upper layer containing Cu, Zn, and metal oxide to obtain an improved catalyst in Suzuki, because Takahata teaches that Pt and/or Pd is an effective catalytic component for exhaust gas catalyst (see Takahata at col. 18, claim 1).

Regarding claims 5 & 10, Suzuki does not disclose zinc oxide, zirconia, palladium and cerium oxide together. However, it would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have incorporated palladium and cerium oxide into the catalyst of Suzuki in order to obtain an improved catalyst because Takahata fairly teaches palladium is an effective catalytic component for exhaust gas catalyst (see Takahata at col. 4, ln 36-38), and cerium oxide ( $\text{CeO}_2$ ) when used with  $\text{ZrO}_2$  gives improved oxygen storability (see Takahata at col. 4, ln 63-65).

Regarding claim 7, Suzuki does not disclose a catalyst containing a substrate, and two catalytic layers containing noble metal and metal oxide. It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have combined the teaching of the Takahata reference forming two catalytic layers containing noble metals to obtain a more effective catalyst in Suzuki, because Takahata fairly teaches three catalytic layers with two catalytic layers containing noble metals (see Takahata at col. 19, claim 32).

### ***Response to Arguments***

7. Applicants' response filed on 6/5/03 has been fully considered, but not deemed persuasive in view of the new ground of rejection above.

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***Conclusion***


8. Claims 1-18 are pending. Claims 1-10 are rejected. Claims 11-18 remain withdrawn due to nonelected (distinct) invention. No claims are allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cam Nguyen, whose telephone number is (703) 305-3923. The examiner can normally be reached on M-F from 8:30 am. to 6:00 pm, with alternative Monday off.

The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 (before finals) and (703) 872-9311 (after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Nguyen/cnn *cnn*  
August 14, 2003

  
Cam Nguyen  
Patent Examiner  
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